ORIGINAL

Before the
Federal Communications Commission
Washington, D.C. 20554

ORIGINAL
FILE

In the Matter of	)	
	)	
Advanced Television Systems	)	MM Docket No. 87-268
and Their Impact upon the	)	
Existing Television Broadcast	)	
Service	)	

COMMENTS OF SONY CORPORATION OF AMERICA

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SUMMARY

The United States is about to enter a dramatically new era of advanced television. For the swift transition to ATV to occur, U.S. consumers must be offered a wide variety of high quality ATV programming, be able to differentiate between ATV and NTSC service, and be able to afford ATV receivers. If the Commission imposes restrictive requirements on the manufacture of ATV equipment or the use of ATV channels, it could prevent ATV from reaching the marketplace and imperil the transition to ATV.

Consumers will be offered a wider range of cost-effective and desirable ATV receivers if the Commission does not require the manufacture of only dual mode receivers. Different segments of the market will demand different types of receivers to satisfy their ATV and NTSC viewing needs. Flexibility in performance, features and facilities thus will be critical to creating a diverse range of ATV receivers to match the divergent tastes and budgets of U.S. consumers. Furthermore, as ATV develops in the U.S., Europe and Japan each will be developing their own ATV transmission standards. Equipment manufacturers thus will be developing ATV receivers compatible with the ATV standards in each of these regions, which in turn, will provide an opportunity for cross fertilization of developments in ATV receiver technology from one region of the world to another. Viewed on this global basis, the U.S. ATV receiver market potentially could consist of various models of ATV receivers with several different capabilities. The U.S. should take full advantage of these global developments.

The transition to ATV also will depend upon offering consumers a wide variety of true ATV programming. To create this wide variety of ATV programming, broadcasters must have the flexibility to maximize the benefits of their ATV channels, and for the longest period possible, dramatically distinguish ATV service from NTSC service. For this reason, the Commission should relax its preliminary simulcasting requirements and allow broadcasters to offer new technologies and ancillary services on their ATV channels. Relaxing the simulcasting requirements will enable broadcasters and producers to create more true ATV programming and thus differentiate ATV and NTSC services for the consumers. Similarly, allowing broadcasters to offer new technologies on their ATV channels will help develop ATV service into an "over-the-air pipeline" into the home, and thus deliver new innovative services to consumers. Additionally, the provision of ancillary services on ATV channels can help broadcasters raise the necessary capital to implement true ATV service.

Finally, Sony wishes to emphasize that we fully agree with the Commission's decision not to impose an ATV production standard. Sony has participated in the HDTV production standards committees and fully believes that these committees should establish HDTV standards. At the same time, however, we believe that unless the industry agrees upon a single production standard, production volumes will remain relatively low and economies of scale will not emerge. For this reason, we urge the industry to address HDTV production standards in a united manner.

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COMMENTS OF SONY CORPORATION OF AMERICA

Sony Corporation of America ("Sony") hereby submits its comments in response to the Memorandum Opinion and Order/Third Report and Order/Third Further Notice of Proposed Rule Making ("Third Further Notice" or "Third Report and Order"), FCC 92-438, released by the Federal Communications Commission ("FCC" or "Commission") on October 16, 1992.[1] Sony fully supports the swift implementation of ATV in the United States, but strongly believes that the transition to ATV will not occur until the American public clearly differentiates between the new ATV and present NTSC visual-aural experiences, is offered a wide variety of "true ATV" programming[2] and can afford to purchase ATV receiving equipment.

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[1] Comments originally were due on December 21, 1992. However, the Commission extended the deadline for filing comments and reply comments until January 7, 1993 and February 8, 1993, respectively. See Order, FCC DA 92-1714, released December 18, 1992.

[2] "True ATV" programming means full HDTV originated programming as opposed to upconverted NTSC or 525 Widescreen component.

Broadcasters, program producers, manufacturers of ATV professional equipments and ATV receivers, as well as the viewing public, have a direct stake in the outcome of the Commission's ATV proceeding. To the extent that the ability of any of these groups to adapt to market conditions is impaired by overly restrictive regulatory requirements, all groups will be disadvantaged and the implementation of ATV service in the U.S. imperiled. Due to this interdependence, these comments address some issues which on the surface might appear to be exclusively related to broadcasters (e.g. - the issues of simulcasting and ancillary services). In our view, excessive regulations could severely impact the ATV industry as a whole.

The Commission's preliminary simulcasting requirements (with its recommendation of a predetermined 15 year transition period to full ATV service) assume an optimistic terrestrial ATV conversion agenda as well as a highly successful ATV market penetration. Should either assumption not materialize, the young ATV industry could be crippled. For these reasons and as set forth more fully below, Sony urges the Commission not to impose strict manufacturing requirements for ATV receivers and to permit broadcasters to maximize the use of their ATV channels and programming capabilities.

I. THE COMMISSION SHOULD NOT MANDATE THE MANUFACTURE OF DUAL MODE RECEIVERS.

Sony believes that ATV receiving equipment will be more affordable and desirable for consumers if the Commission does not require manufacturers to produce dual mode receivers during the ATV transition period. Third Further Notice, ¶ 81. Sony expects that ATV receivers initially will be expensive due to the relatively low volume of production, combined with new high technology. The challenge to equipment manufacturers thus will be to reduce these initial high costs so that more consumers will be able to purchase ATV receiving equipment and view ATV programming in their own homes.

Sony believes that the virtually simultaneous emergence of multichannel NTSC services via cable, fiber, microwave and DBS, will cause the demand for NTSC receiving capability to continue well beyond the introduction of ATV. Nevertheless, Sony believes that manufacturers will be better able to satisfy this need and meet the challenge of producing a desirable and cost-effective range of ATV receivers if the Commission does not require the manufacture of dual mode receivers.

Sony anticipates that different segments of the market will demand different types of receiving equipment to satisfy their NTSC and ATV viewing needs. Broad flexibility in performance, features, and facilities thus will be crucial to

creating a sufficiently diverse range of ATV receivers that will match the divergent tastes and budgets of U.S. consumers and that will be required to achieve a brisk launch of an ATV service. For example, some consumers who already own sophisticated NTSC equipment may demand ATV reception equipment only. Others may opt to supplement their NTSC receivers with ATV downconverters. Still other consumers without sophisticated NTSC receivers may decide to purchase dual mode receivers.

If the Commission were now to impose a dual mode receiver requirement, we believe that Sony and other manufacturers will be less able to meet the challenge of producing a cost-effective and desirable range of ATV receivers. Consequently, some consumers may be less apt to purchase ATV receiving equipment, which, in turn, could imperil or delay the transition to ATV. Moreover, imposition of a dual mode receiver requirement creates the very real risk that the U.S. will be unable to take advantage of developments in receiver technology and design that are now taking place with respect to ATV receiver equipment manufactured and sold for use elsewhere in the world.

Unlike the development of color television, there is a multinational effort to expand the capabilities of ATV technology and to produce a wide variety of ATV downconverters and receivers. While ATV is being developed in the United States, ATV technology also is under development in Europe and Japan. Because a different ATV standard will be adopted in each of these

regions, Sony and other manufacturers necessarily must develop ATV receivers that will vary from region to region. Additional differences between receivers sold in each of these areas may be caused by the varying features demanded by consumers (such as PIP, zoom, etc.). These differences offer the opportunity for a cross-fertilization of developments in ATV receiver technology from one country or area of the world to another. As a result, ATV receiver development in one region will likely spur ATV receiver development in other regions. Viewed on a global basis, the range of available ATV receivers thus could well consist of several different models of dual mode receivers, ATV receivers and downconverters with various capabilities being offered by Sony and other manufacturers in different areas of the world.

Sony believes that the U.S. must take full advantage of this global technology and diversity of ATV receivers in order to make this equipment affordable and attractive to all U.S. consumers. However, in order to do this most effectively, governmental restrictions on marketplace flexibility should be held to an absolute minimum. If the U.S., or any other major market (such as Europe or Japan) were to place restrictions on the ATV receiver market, it would disrupt the cross-fertilization of ideas in the different marketplaces that Sony believes is critical to the most efficient development of ATV receiver technology and manufacturing.

Although many U.S. consumers will purchase dual mode receivers, the Commission should not intervene in the marketplace and require manufacturers to produce only dual mode receivers.[3] Equipment manufacturers have a tremendous stake in ensuring the success of ATV and thus will make every effort to offer consumers a range of desirable and cost-effective ATV receivers. Indeed, if consumers do not purchase ATV receiving equipment, many of the resources used to develop and manufacture ATV equipment will have been spent in vain.

At present, Japan is the only country to have inaugurated some form of ATV service. However, Japan has not imposed any restrictions on the production of HI-VISION receivers. As a result, equipment manufacturers have been able to offer Japanese consumers a wide range of cost-effective and desirable HI-VISION receivers.

Sony recognizes that the U.S. ATV experience inevitably will differ from that of Japan and that it is too premature to predict the success of Japan's HI-VISION service. However, Sony believes that the U.S. can benefit from studying Japan's efforts to develop a competitive market for HI-VISION receivers and strongly urges the Commission not to impose a dual mode receiver requirement that could hinder the development of an equally if not more competitive and diverse U.S. ATV receiver market.

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[3] See Sony Comments in response to Second Report and Order/Further Notice of Proposed Rulemaking, dated July 17, 1992 at 48-49 ("Sony Comments").

II. BROADCASTERS SHOULD BE ABLE TO MAXIMIZE THE USE OF ATV CHANNELS AND PROGRAMMING CAPABILITIES.

In addition to lowering the cost of ATV receivers, Sony believes that broadcasters must transmit a substantial amount of true ATV programming before most consumers will purchase ATV receivers. ATV is not merely "more resolution in wide screens," but provides a unique aural and visual experience that is completely unmatched by NTSC.[4] In order to create programming that will convey and demonstrate to consumers the full benefits of ATV, and thus create demand for ATV receivers, broadcasters must have the freedom to maximize the benefits of their ATV channels, and, for the longest period possible, radically distinguish ATV programming from the parallel NTSC service. For this reason, Sony urges the Commission to relax its preliminary simulcasting requirements and also to allow broadcasters to offer new technologies and ancillary services on their ATV channels.

A. The Preliminary Simulcasting Requirements Should Be Relaxed.

Sony understands that the Commission has preliminarily decided to impose a 50% simulcasting requirement one year after the completion of the 6-year application and construction period and a 100% simulcasting requirement two years later and that these preliminary requirements will be reviewed by the Commission

[4] See Sony Comments, p.28.

in 1999 and 2002. See Third Report and Order, ¶¶ 63-71. These simulcasting requirements were established primarily to provide broadcasters adequate flexibility and time to establish ATV service, while at the same time protecting consumer investment in NTSC receivers and ensuring that the Commission ultimately can reclaim the 6 MHz conversion channels. Id., ¶ 64.

Sony fully supports all of these goals, but cautions the Commission that the preliminary 50% and 100% simulcasting requirements will not give broadcasters sufficient time to create a distinctive ATV service that will lure consumers away from NTSC. Furthermore, we believe that this strict simulcasting regime is not necessary to protect consumer investment in NTSC receivers or to ensure the recovery of ATV conversion channels. For this reason, Sony urges the Commission to relax the preliminary simulcasting requirements now, rather than postpone this decision until 1999. Relaxing the simulcasting requirements now will assure broadcasters the time and flexibility needed to develop truly dramatically different ATV programming. All parties -- program producers, broadcasters, and manufacturers -- are inextricably bound up in the complex marketplace mechanisms that will ensure ultimate success of ATV in the U.S. It is on this basis that Sony urges caution on this vital issue of the simulcast percentage.

The ultimate success of ATV hinges upon providing ATV programs to consumers that combine a whole new visual imagery

with multichannel "CD quality" sound and thus create a dramatically new home viewing experience. If consumers are not exposed to the unique and attractive qualities of ATV, they will have no incentive to invest in ATV receivers, especially considering that several new multichannel NTSC services will be emerging in the market at the same time. In order to achieve the necessary exposure of consumers to true ATV, there must be a substantial supply of high quality ATV programming. Only in this way, will consumers be made aware of the differences between ATV and NTSC. Unlike some, Sony does not believe that Widescreen in itself constitutes the most discernable attribute of ATV. Upconversion of NTSC or 525 Widescreen material is merely an expedient that assists the transition to ATV during the early years of conversion. Full HDTV program origination needs to be brought on-line as quickly as possible.

To ensure that consumers are exposed to the dramatic qualities of ATV as soon as possible, it would not be advisable for the Commission to impose a 50% simulcasting requirement one year after the completion of the application/construction period. Sony believes that when the 50% simulcasting requirement is scheduled to take effect, very few ATV stations will actually be transmitting large quantities of true ATV programming. Thus, at that point, Sony expects that the demand for ATV receivers will be minimal. HDTV program origination, which is a necessary prerequisite to <u>true</u> ATV programming, will require major investments by U.S. program producers as well as wholesale

changes to the broadcast origination and transmission infrastructures. Once these investments and changes are made, broadcasters and programers can begin to learn how to exploit the benefits of this new medium.[5] This will take time. For example, in Italy, RAI reported that producers needed three years to learn how to exploit all of the benefits of ATV for producing soccer games.[6] For these reasons, Sony does not expect there to be a substantial supply of high quality ATV programming at the time the Commission's preliminary 50% simulcasting requirement would take effect. The U.S. consumer will expect diversity in ATV programming in addition to a critical volume of programming. See Sony Comments, July 17, 1992, pp. 34-36.

As Sony explained in some detail in our comments in response to the Commission's Second Report and Order/Further Notice of Proposed Rule Making, 7 FCC Rcd. 3340 (1992) ("Further Notice"), there should be a radical difference between the picture content of a true ATV image and that of NTSC. It will take time for program producers and broadcasters to fully explore

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[5] Moreover, at the time the application and construction period begins, very few stations will be poised to invest in ATV programming and origination equipment. The largest stations in the largest markets may have the capital to invest in ATV. Smaller stations, however, especially in smaller markets, may need additional time to raise such capital. For this reason, Sony anticipates that the availability of ATV programming and the ATV receiver penetration rate will vary, depending upon the station size and the demographic region.

[6] During the initial years of ATV, most broadcasters will likely rely on network or syndicated ATV programming rather than produce local ATV programming due to the initial expense and difficulty of originating ATV programming.

and master the enormous new image making prowess of ATV (notably wide angle shooting). See Sony Comments, pp. 30-34. Even more critical -- it will take time to develop rational technical techniques to "downconvert" these images to produce satisfactory NTSC images that properly meet the FCC requirement for simulcasting (namely, that NTSC program content be basically the same as that of ATV). This is not just an issue of aspect ratio change.[7]

Because ATV programming will not be widely available when the 50% simulcasting requirement is scheduled to be imposed, most consumers will not own ATV receivers or be exposed to high quality ATV programming. Once 50% simulcasting begins, consumers will be exposed to ATV programming, but primarily through their NTSC receivers. Since NTSC receivers cannot convey or demonstrate the enhanced qualities of ATV, consumers will be inclined to associate ATV programming with the lesser quality NTSC images. As a result, consumers will not have a clear vision or understanding of ATV capabilities and thus will be less likely to invest in ATV receivers.[8] As the demand for ATV reception

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[7] See Sony Comments, July 17, 1992, p. 41.

[8] The Commission's definition of simulcasting requires the broadcast "of the same basic material as shown on the ATV channel on the NTSC channel, but not also the converse." Third Report and Order, ¶ 73. However, due to the lack of ATV programming, some broadcasters may decide to convert popular NTSC programs, such as old films or popular television series, to the ATV format. Because ATV and NTSC have different aspect ratios and technical parameters, many of these NTSC programs will appear distorted on ATV channels. Consumers who view these NTSC programs on ATV receivers could be even less convinced that ATV is truly a new viewing experience.

plateaus, broadcasters and producers will have less incentive to produce ATV programming, which in turn, will further dissuade consumers from purchasing ATV receivers. If this cycle were to continue, the overall incentive to convert to ATV could easily disintegrate.[9]

Furthermore, Sony believes that the Commission's preliminary 50% simulcasting requirement will pose unnecessary technical challenges to broadcasters. The Commission's preliminary simulcasting rules will require broadcasters to establish ATV service while simultaneously learning how to use upconverters and downconverters to simulcast ATV programs on their NTSC stations. Simulcasting inevitably will require changes to routing switchers, distribution and production switchers, as well as master control and monitoring instruments and thus will require a significant amount of training and resources. Sony believes that these resources would be better spent on developing a genuine HDTV origination service rather than focusing on large scale conversion of ATV programs to the NTSC format.

A better approach to implementing ATV would be to allow broadcasters, producers and manufacturers to define unambiguously ATV programming to the American public (and thus educate them about its benefits) before imposing a simulcasting requirement.

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[9] Indeed, Japan's HI-VISION service is of dubious success to date primarily because there is a dearth of programming that exploits the benefits of HI-VISION service.

Once the enhanced qualities of ATV are known and widely available, consumers will desire ATV service and will purchase ATV receivers. For this reason, Sony believes that ATV receiver penetration is the best gauge for deciding when to impose a simulcasting requirement. More specifically, Sony recommends imposing a 25% simulcasting requirement one year after the receiver penetration reaches 20% in a particular market. Sony further recommends that the simulcasting requirement in that market be increased to 50% two years later. However, Sony believes that the Commission should not impose a 100% simulcasting requirement at any point. Under no circumstances, would Sony recommend imposing a simulcasting requirement during the initial five years of ATV service.

Sony believes that a simulcasting requirement based on the ATV receiver penetration rate will adequately protect consumer investment in NTSC receivers and ensure the surrender of ATV conversion channels. The advent of ATV will be accompanied by a host of new multichannel NTSC services (via alternative media) that will preserve the value of NTSC receivers, regardless of whether the Commission imposes a simulcasting requirement. Furthermore, correlating the simulcasting requirement to the ATV receiver penetration rate will create a more natural phase-out of NTSC. As consumers purchase ATV receivers and demand more ATV programming, broadcasters will allocate more resources from their NTSC stations to their ATV stations. As this trend continues, over-the-air NTSC services will gradually decline and the

Commission will be able to reclaim the ATV conversion channels. For these reasons, Sony believes that the Commission should review these preliminary simulcasting requirements now rather than wait until 1999. For broadcast networks --(and ultimately, the large base of local broadcasters) -- to originate true ATV programming (that is distinctly different from traditional NTSC) there will be required a substantial investment in:

-- Studio cameras and VTR's
Portable Eng/EFP field equipments
Production switchers, special effects system;

-- Monitors (studio)
Library management systems
Master Control;

-- Technical training
Production training; and

-- Studios, sets, lighting, mobile trucks

Even in the most optimistic scenario, this plant conversion and associated training (substantial in terms of production techniques) will inevitably take at least 5 - 10 years. This must be factored into the early simulcast percentage criteria. If not, the only recourse will be to take shortcuts such as upconverting NTSC to ATV, or originating in 525 Widescreen (which is NOT true ATV). Such shortcuts will seriously jeopardize the realistic emergence of a genuine ATV service.

B. Broadcasters Should Be Permitted To Use Advanced Technologies on ATV Channels.

Sony fully supports the Commission's proposal to authorize the provision of advanced video services on ATV channels, provided that the services are compatible with the ATV transmission standard. Third Further Notice, ¶¶ 58-59. Once the ATV transmission standard is selected in 1993, Sony believes that ATV has the potential to serve as an "over-the-air pipeline" into the home. This "over-the-air pipeline" will not only help broadcasters keep pace with cable and other new NTSC services, but will serve the public interest by bringing new innovative services into the home. There is much discussion in the U.S. today about developing digital highways (composed of fiber optic) that will link the entire country. Sony believes that ATV can contribute to this goal by providing a supporting over-the-air digital highway into the home. Over-the-air digital communication will always have one distinctive advantage over a cabled (or fiber optic) system: namely, it will support mobile reception. Just as NTSC receivers today can be found in virtually all physical environments -- so too, it is inevitable that the ATV receiver will become equally ubiquitous.

The events that have occurred since the Commission initiated this proceeding in 1987 make clear that television technology is now on a fast track and that the vision of using ATV as a digital highway could soon become a reality. In 1987, the industry spoke of HDTV, yet only five years later this idea

has been transformed into Advanced Television ("ATV") or digital Advanced Television ("DATV"). Thus, the essence of this proceeding has become a moving target, and due to digital technology, the technology is developing at a greater rapidity than ever before. Indeed, manufacturers throughout the world are working vigorously to expand the capabilities of ATV technology. See infra. As a leading manufacturer of technology products, Sony expects this work to yield various new services, including but not limited to, multichannel and interactive ATV services. ATV thus promises to open the door to flexible new technologies, and Sony fully agrees with the Commission that this door should be left wide open to welcome all new technological advances and services. In addition to providing an enhanced entertainment service, the digital ATV receiver offers significant opportunities to support other services that can capitalize on widescreens and substantially higher resolutions. The presentation of text, data, technical drawings, works of art, etc. offer untold opportunities to enhance education, offer interactive services (shopping, medical, computing, etc.) and augment cultural activities within our future society.

As a final note, Sony urges all digital service providers to coordinate and agree at the outset upon an interface standard for this over-the-air ATV pipeline.[10] Unlike its

[10] As with the ATV production standard, Sony does not believe that the Commission should establish interface standards for ATV technologies. See infra III. Rather, Sony believes that the industry as a whole should resolve these issues.

disparate European counterparts, the North American NTSC system has maintained remarkable durability and high quality, in large part, due to its interoperability with emerging new technologies. Sony is confident that the television, computer and telecommunications industries are fully aware of the need for digital interoperability as we enter this ATV era. However, we cannot but underscore the importance of coordinating now to address this issue, as opposed to the future. The latter half of this decade promises to yield several new services, including digital ATV, digital VCR, videodisc, digital networks (cable, fibers and perhaps even the twisted pair), and a whole host of computer linked devices. Failure to address these interface issues in a timely manner[11] could later burden the consumer and thus disserve the public interest.

C. Broadcasters Should Be Able To Use ATV Channels To Provide Ancillary Services At All Times On A Non-Interfering Basis.

The revenues from ancillary services are crucial to the success of terrestrial ATV because they will support the large capital investments required to convert television stations to full ATV operation. As listed earlier, there are many new plant equipments required, installation costs, and substantial re-training. Simulcast is a dual service -- thus, additional

[11] By timely, we mean close on the heels of the preliminary work of FCC ACATS and ATSC and EIA on interoperability. Sufficient groundwork has been laid on this topic to launch a focused effort within the EIA Consumer Electronic Group on developing this interface.

manpower may be required (or at least an investment in a higher degree of station automation).

It must be borne in mind that as the broadcasters are launching ATV, the other television delivery media such as cable, DBS and fiber/twisted pair will be launching new services based upon digital compression technologies. Whatever new services are offered by these other media should also be open to broadcasters in order to ensure their long-term viability. Ultimately, we believe that all of these media will competitively deliver ATV -- in addition to providing ancillary services. The full long-term promises of interoperability will be better realized if all television delivery media start in the era of ATV and digital compression on an equal footing.

As to the ancillary services: these are not yet well defined, but there is considerable talk today about:

- Pay per view (special events)
- Interactive systems (video games, home shopping, home banking, local polling, etc. etc.)
- Video Dial tone (Yellow pages Video on demand, etc. etc.)

The societal "needs" of the 21st century: education, medical, cultural, competitiveness, home operated business, etc., will be broad and must be served by an equally broad range of informational and entertainment programming. The terrestrial broadcaster has always had one powerful potential: the ability

to reach into all homes within a given locality. "Localism" historically has meant a one-way television service of entertainment, news, local politics, and local events within a given local community. With a new over-the-air digital highway, localism could acquire an immense new potential for developing local communities -- enhanced entertainment (interactive games), educational classes, electronic town meetings, cultural activities, access to data bases, etc.

Finally, during the early years when ATV programming does not fill a day, the broadcaster should be allowed to maximize the prowess of digital compression technology and also provide some amount of multiplexed NTSC or 525 Widescreen service (again, to allow ATV to keep pace with alternative media). For this reason, Sony urges the Commission to allow broadcasters to provide ancillary services on their ATV channels during non-operational hours and during operational hours on a non-interfering basis.[12] Ancillary services could generate additional much-needed revenues needed to implement ATV. [13]

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[12] Sony believes that this is technically feasible. Third Further Notice ¶ 77.

[13] Sony fully supports the Commission's decision to defer further defining "ATV programming" and to defer establishing minimum ATV programming hours. Third Further Notice, ¶ 76. As discussed more fully above, there is a worldwide effort to expand the capabilities of ATV technology, and broadcasters must have the flexibility to take full advantage of all future developments. An attempt to define ATV programming now could inadvertently exclude some programming sources and formats that could be highly desirable to viewers. Similarly, it is too premature to require broadcasters to provide a specified amount of ATV programming.

Additionally, it is highly unlikely that the ancillary use would ever predominate over the primary use of ATV channels. Third Further Notice, ¶ 77. As the Commission has noted, broadcasters provide many ancillary services on their NTSC channels, including but not limited to, vertical blanking interval ("VBI"), subsidiary communication authorizations ("SCA"), and second audio programming ("SAP"). Id. These ancillary services, however, have never predominated over the primary NTSC services. The same is true in the context of DBS. Id., ¶ 77 n.290.

As discussed more fully above, ATV promises to bring an entirely new viewing experience into the American home. While the provision of ancillary services may increase station revenues and help make ATV service possible, Sony does not believe that ancillary services will predominate over ATV services -- just as they have not with NTSC service. The reason for this is primarily an economic one -- consumers are not going to make substantial financial outlays merely for ancillary services. They will do so only if ATV brings a substantial enhancement to their visual-aural home experience.

Restrictions on the provision of ancillary services not only are unnecessary at the present time but, in Sony's opinion, are likely to prove counterproductive. Just as we believe to be the case with the proposed requirement for dual mode receivers, a restriction on ancillary services will restrict the ability of

the marketplace to respond promptly to consumer demand. In so doing, such restrictions may well prevent or slow the development of new types of ancillary services that take full advantage of the digital highway to the home that will be made available through ATV.

Nonetheless, if ancillary services begin to interfere with the provision of ATV service in the future, the Commission, at that time, can adopt appropriate regulations. However, based on the current need to raise revenues to implement ATV and the small likelihood that ancillary services will compete with ATV programming, there is no reason to impose restrictions now on the provision of ancillary services.

Similarly, Sony does not believe that the Commission should establish some minimum operating schedule for ATV stations if ATV stations may be used to provide ancillary services during non-operational hours. Third Further Notice, ¶ 77. As discussed above, while ancillary services could provide necessary revenues for implementing ATV, it is unlikely that ancillary services will predominate over ATV programming. For this reason, broadcasters will still have every incentive to increase the amount of ATV programming, and thus a minimum operating schedule is not necessary to ensure that the public receives maximum value from the conversion spectrum. Id. Nonetheless, if broadcasters fail to maximize the use of their ATV channels in the future due to the provision of ancillary services, the Commission, at that